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REMARKS

Claims 1-20 are pending in this application. Claims 1, 6, 7, 13, 14, 19 and 20 were rejected. Claims 2-5, 8-12 and 15-18 were indicated to be allowable. None of the claims is currently amended. Reconsideration and further examination are respectfully requested.

Claims 1, 6, 7, 13, 14, 19 and 20 were rejected under 35 U.S.C. 102(e) as being anticipated by Simeon. Like the presently claimed invention, Simeon teaches a technique to help shorten the impulse response of a channel. As discussed in the Background at page 4, first paragraph, shortening the impulse response of a channel is generally known in the DSL field, although numerous different inventive techniques may be employed to achieve that goal. Simeon teaches one such technique: shortening the impulse response by reducing the number of filter coefficients. (See, e.g., Abstract) With regard to calculation of the coefficients, Simeon simply states that any one of several established techniques can be used. Col. 5, lines 59-63. The presently claimed invention concerns a technique for calculating the coefficients. For example, claim 7 recites "training logic is operably coupled to determine a set of coefficients for the time-domain equalizer using a two-pass auto-regressive moving average model." (emphasis added) Similarly, claim 14 recites "coefficient determination logic programmed to combine the first shortened channel impulse response with an inverse of the second shortened channel impulse response to obtain a third shortened channel impulse response." Similarly, claim 20 recites "the second communication device is operably coupled to determine a set of coefficients for a time-domain equalizer from a received training signal using a two-pass auto-regressive moving average model." Finally, claim 1 recites "combining the first shortened channel impulse response with an inverse of the second shortened channel impulse response to obtain a third shortened channel impulse response." Since Simeon fails to even describe a technique for coefficient calculation, it

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certainly fails to anticipate the presently claimed invention. Indeed, it is difficult to see how Simeon is even relevant to the present application. Consequently, withdrawal of the rejections of claims 1, 7, 14 and 20 based on Simeon is respectfully requested. Claims 6, 13 and 19 are dependent claims which further distinguish the invention, and which are allowable for the same reasons as their respective base claims. Withdrawal of the rejections of claims 6, 13 and 19 is also requested.

The Office objected to the Specification for improperly referencing documents being incorporated by reference because those documents were not part of an IDS. In particular, the Office bases the rejection on MPEP 2163.07(b), and appears to demand submission of an IDS. Applicant respectfully traverses. MPEP 2163.07(b) states, in full:

Instead of repeating some information contained in another document, an application may attempt to incorporate the content of another document or part thereof by reference to the document in the text of the specification. The information incorporated is as much a part of the application as filed as if the text was repeated in the application, and should be treated as part of the text of the application as filed. Replacing the identified material incorporated by reference with the actual text is not new matter. See MPEP § 608.01(p) for Office policy regarding incorporation by reference. >See MPEP § 2181 for the impact of incorporation by reference on the determination of whether applicant has complied with the requirements of 35 U.S.C. 112, second paragraph when 35 U.S.C. 112, sixth paragraph is invoked.

Nothing in MPEP 2163.07(b) requires submission of an IDS for documents incorporated by reference, nor does it authorize the Examiner to require submission of an IDS for documents simply because those documents are incorporated by reference. Further, submitting an IDS in this application would be burdensome on Applicant since at least some of the references are costly books and publications, e.g., reference [1] is a book that retails for \$110. Withdrawal of the objection is therefore requested.

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Claims 1-6 and 14-19 were rejected under 35 U.S.C. §101 for being drawn to non-statutory subject matter. In particular, the Examiner suggests that the claims are merely drawn to a mental process for channel shortening that could be calculated using pencil and paper. Applicant respectfully traverses for two reasons. The first reason is that a human being, with or without pencil and paper, cannot measure the impulse response of a channel. Claim 1 recites "determining a first shortened channel impulse response for a communication channel using a first channel modeling scheme," and claim 14 recites "first channel modeling logic programmed to determine a first shortened channel impulse response for the communication channel." These steps cannot be accomplished via mental processes alone because inputs for calculations cannot be measured via mental processes. The second reason for traversing the rejection is that even if a human being could make the claimed calculation with pencil and paper, it would be of no practical use. The mathematics required for coefficient calculation are relatively complex. However, in order to provide a product or service that is acceptable to a subscriber these calculations must be made on demand and in a timely manner. This can only practically be accomplished with processors and communications network equipment, and not with teams of mathematicians. The Office also suggested that claims 1-6 and 14-19 merely describe the manipulation of abstract ideas. However, the impulse response of a channel is not merely an abstract mathematical concept. Rather, the impulse response of a channel is a physical phenomenon that can be both measured and displayed with test equipment. Withdrawal of the rejection is therefore requested.

The Office also made a double patenting rejection of claim 1-20 based on claims 1-6 of USP 6,674,795. The Office concedes that the claims are not identical, but suggests that they are not patentably distinct. Applicant respectfully traverses. Claims 1-6 of the '795 patent are distinct because they recite "modeling a communication channel using an auto-regressive moving

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average model **that is converted into a two-channel auto-regressive model** through embedding," (emphasis added) or similar language. The presently claimed invention is a **two-pass technique, rather than a two-channel technique**. Further, since the present application and the '795 patent were filed on the same date, the terms will almost certainly be identical anyway. Withdrawal of the objection is respectfully requested.

Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone the undersigned, Applicants' Attorney at 978-264-4001 so that such issues may be resolved as expeditiously as possible.

For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,

October 11, 2005
Date


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Docket No. 120-129
Dd: 09/17/2005